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#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Job No.: SCE/BBMP/RL/17/2020-2021

Date:06.01.2021

TEST REPORT ON CEMENT

Client : **Executive Engineer,** RR Naga Division,BBMP, Bangalore.

Agency : **Sri. R Lokesh,** Contractor, Bangalore.

Name of Work Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Sample : :Cement (Zuari 53 grade OPC)

Sample Supplied by: :AGENCY

Date of Manufacture: :December-2020

Date of Testing 04.01.2021 to 06.01.2021

Sl.No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 269:2015
1	a) Initial Setting Time	IS-4031 (Part - 5):1988(RA 2014)	145 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part - 5):1988(RA 2014)	355 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part 3) :1988 (RA 2014) by the Le-Chatelier method	1 mm	Not more than 10 mm
3	Standard Consistency	IS-4031 (Part -4)	29.50%	-

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Asst. Executive Engineer
Yeshwanthpura Sub-Division
Bruhat Bangalore Mahanagara Palike

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Valagerahalli, Mysore Road, Bangalore 560059
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Job No.: SCE/BBMP/RL/17/2020-2021

Date 06.01.2021

TEST REPORT ON FINE AGGREGATES (SAND)

Client : **Executive Engineer,** RR Naga Division,BBMP, Bangalore.
Agency : **Sri. R Lokesh,** Contractor, Bangalore.
Name of Work Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumaragara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Date of Testing 06.01.2021
IS Code :IS 383:2016
:IS 2386 (Part 1):1963(RA 2011)
Material : Sand

Total Wt. of Aggregates in gms 1000

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Requirements as per IS 383:2016 Spec.Limits For Zone-II
10	0	0	0	100	100
4.75	85	8.50	8.50	91.5	90-100
2.36	115	11.50	20.00	80.0	75-100
1.18	175	17.50	37.50	62.5	55-90
600 Micron	230	23.00	60.50	39.5	35-59
300 Micron	158	15.80	76.30	23.7	8-30
150 Micron	169	16.90	93.20	6.8	0-10

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#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Job No.: SCE/BBMP/RL/17/2020-2021

Date 06.01.2021

TEST REPORT ON COARSE AGGREGATES

Client : **Executive Engineer,** RR Naga Division,BBMP, Bangalore.

Agency : **Sri. R Lokesh,** Contractor, Bangalore.

Name of Work Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Date of Testing 06.01.2021

IS Code :IS 383:2016

:IS 2386 (Part 1):1963(RA 2011)

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **15000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Requirements as per IS 383:2016
80	0	0	0	100	100
40	202	1.35	1.35	98.65	95-100
20	8545	56.97	58.31	41.69	30-70
10	3196	21.31	79.62	20.38	10-35
4.75	2569	17.13	96.75	3.25	0-5

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Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Job No.: SCE/BBMP/RL/17/2020-2021

Date 06.01.2021

TEST REPORT ON COARSE AGGREGATES

Client : **Executive Engineer,** RR Naga Division,BBMP, Bangalore.

Agency : **Sri. R Lokesh,** Contractor, Bangalore.

Name of Work Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Date of Testing 06.01.2021

IS Code :IS 383:2016

:IS 2386 (Part 1):1963(RA 2011)

Material : 20mm Aggregates

Total Wt. of Aggregates in gms= **5000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Requirements as per IS 383:2016
40	0	0	0	100	100
20	189	3.8	3.8	96.2	95-100
10	3052	61.0	64.8	35.2	25-55
4.75	1556	31.1	95.9	4.1	0-10

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Email: sapiencebangalore@gmail.com

Job No.: SCE/BBMP/RL/17/2020-2021

Date 06.01.2021

TEST REPORT ON SOLID CONCRETE BLOCKS

Client : **Executive Engineer,** RR Naga Division,BBMP, Bangalore.

Agency : **Sri. R Lokesh,** Contractor, Bangalore.

Name of the Work Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Date of Testing 06.01.2021

Size of Blocks : 400mm x 200mm x 200mm

Cross Sectional Area : 80000 mm^2

Technical Reference : IS: 2185 (Part 1) - 2005

No. of Blocks Tested : 04

Sl.No.	Block ID	Wt. in Kg	Failure load (KN)	Compressive strength (N/mm^2)	Block Density in Kg/M^3	Requirement as per IS 2185 (Part 1) - 2005
1	Block 1	33.1	305.5	3.82	2068.75	Minimum required Compressive Strength of Individual Units 3.5N/mm^2
2	Block 2	32.8	331.1	4.14	2050.00	
3	Block 3	32.1	329.9	4.12	2006.25	
4	Block 4	32.7	320.4	4.01	2043.75	

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#89-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386
Email: sapiencebangalore@gmail.com

Job No.: SCE/BBMP/RL/17/2020-2021

Date: 06.01.2021

TEST RESULTS OF PHYSICAL PROPERTIES OF REINFORCEMENT STEEL

Client

Agency : : Executive Engineer, RR Naga Division,BBMP, Bangalore.

Name of Work : : Sri. R Lokesh, Contractor, Bangalore.

: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Sample Identification : 8mm,10mm Fe 500 TMT Bars

Technical Reference : IS 1786:2008, IS 1608:2005, IS 1599:1985 (Reaffirmed 2006)

Date of test : 06.01.2021

S.No	Brand	Nominal size (dia in mm)	Mass per metre (kg/metre)	TENSILE STRENGTH		
				0.20 % proof stress/ yield stress (N/mm^2)	Tensile strength (N/mm^2)	Elongation, percent on gauge length
1	Fe 500	8	0.396	502	603	18
2	Fe 500	10	0.619	521	607	25

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Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

JobNo: SCE/BBMP/RL/17/2020-2021

Date 10.02.2021

GRADATION FOR GSB (Grading V)

Client :

Agency: : **Executive Engineer,** RR Naga Division,BBMP, Bangalore.

Name of work: : **Sri. R Lokesh,** Contractor, Bangalore.
Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

BIS Code: IS 2386 Part (1):1963
IS 2720 part (5):1985

Date of Testing 08.02.2021 to 10.02.2021

Oven Dry Wt (gm) : 13000

TABLE – 1

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirements as per MORTH 5th edition table 400.1
75	0	0	0.00	100	100
53	1705	1705	13.12	86.88	80-100
26.5	2036	3741	28.78	71.22	55-90
9.5	2065	5806	44.66	55.34	35-65
4.75	1752	7558	58.14	41.86	25-50
2.36	2899	10457	80.44	19.56	10-20
0.85	1755	12212	93.94	6.06	2-10
0.425	265	12477	95.98	4.02	0-5

Table 2

Sl. No.	Particulars	Test Results	Requirements as per MORTH 5th edition table 400.2
1	Liquid Limit, %	22.00	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading V

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Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

JobNo: SCE/BBMP/RL/17/2020-2021

Date 10.02.2021

GRADATION FOR GSB (Grading V)

Client :

Agency: **: Executive Engineer,** RR Naga Division,BBMP, Bangalore.

Name of work: **: Sri. R Lokesh,** Contractor, Bangalore.
Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

BIS Code: IS 2386 Part (1):1963
IS 2720 part (5):1985

Date of Testing 08.02.2021 to 10.02.2021

TABLE – 1

Oven Dry Wt (gm) : 13000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirements as per MORTH 5th edition table 400.1
75	0	0	0.00	100	100
53	1705	1705	13.12	86.88	80-100
26.5	2165	3870	29.77	70.23	55-90
9.5	2088	5958	45.83	54.17	35-65
4.75	1765	7723	59.41	40.59	25-50
2.36	2855	10578	81.37	18.63	10-20
0.85	1715	12293	94.56	5.44	2-10
0.425	269	12562	96.63	3.37	0-5

Table 2

Sl. No.	Particulars	Test Results	Requirements as per MORTH 5th edition table 400.2
1	Liquid Limit, %	21.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading V

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Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

JobNo: SCE/BBMP/RL/17/2020-2021

Date 10.02.2021

GRADATION FOR GSB (Grading V)

Client :
Agency: : **Executive Engineer,** RR Naga Division,BBMP, Bangalore.
Name of work: : **Sri. R Lokesh,** Contractor, Bangalore.
Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

BIS Code: IS 2386 Part (1):1963
IS 2720 part (5):1985

Date of Testing 08.02.2021 to 10.02.2021

TABLE – 1

Oven Dry Wt (gm) : 13000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirements as per MORTH 5th edition table 400.1
75	0	0	0.00	100	100
53	1652	1652	12.71	87.29	80-100
26.5	2155	3807	29.28	70.72	55-90
9.5	2075	5882	45.25	54.75	35-65
4.75	1854	7736	59.51	40.49	25-50
2.36	2836	10572	81.32	18.68	10-20
0.85	1754	12326	94.82	5.18	2-10
0.425	288	12614	97.03	2.97	0-5

Table 2

Sl. No.	Particulars	Test Results	Requirements as per MORTH 5th edition table 400.2
1	Liquid Limit, %	18.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading V

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Email: sapiencebangalore@gmail.com

Job No.: SCE/BBMP/RL/17/2020-2021

Date: 16.01.2021

KERB STONE (CORE) TEST REPORT

Client Agency : **: Executive Engineer,** RR Naga Division,BBMP, Bangalore.

Name of Work : **: Sri. R Lokesh,** Contractor, Bangalore.

: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

No.of Sample Tested : 3

Date of Testing : 16.01.2021

Techinical Reference : IS:516-1959 (Reaffirmed 1999), SP-24:1983.

Grade of Concrete : M_{15}

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	80.00	0.367	2336.39	1.60	0.957	26.30	13.39	14.47	13.84	17.30
2	50.00	80.00	0.366	2330.03	1.60	0.957	28.40	14.46	15.62	14.95	18.68
3	50.00	80.00	0.379	2412.79	1.60	0.957	25.30	12.89	13.92	13.31	16.64

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(Building, Geo-Tech & Road Materials Testing Laboratory)

#89-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

JobNo: SCE/BBMP/RL/17/2020-2021Date:01.03.2021

TEST REPORT ON PAVING BITUMEN

Client :	**: Executive Engineer,** RR Naga Division,BBMP,Bangalore.
Agency:	**: Sri. R Lokesh,** Contractor, Bangalore.
Name of work:	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
BIS Code:	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing:	**01.03.2021**
Type of Mix:	**Dense Graded Bituminous Macadam , VG 30**
Source of Location:	**Hot Mix Plant**

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	52	Min 45
2	Softening point, 0C	44	Min 47
3	Ductility at 250C, cm	99	Min40
4	Flash Point, 0C	286	Min 220

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#B9-003, GANGA, Jnanabharathi Enclave,
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Job No.: SCE/BBMP/RL/17/2020-2021

Date: 01.03.2021

Aggregate Gradation Test

Client	: Executive Engineer, RR Naga Division,BBMP, Bangalore.
Agency	: Sri. R Lokesh, Contractor, Bangalore.
Name of the Work	Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)
BIS Code	IS 2386(Part 1):1963(RA 2011)
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	01.03.2021

Total Weight of Sample: 10000 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	695	7.0	6.95	93.05	90 - 100	
19.00	1245	12.5	19.40	80.60	71 - 95	
13.20	1325	13.3	32.65	67.35	56 - 80	
4.75	2540	25.4	58.05	41.95	38 - 54	
2.36	1085	10.9	68.90	31.10	28 - 42	
0.300	1265	12.7	81.55	18.45	7 - 21	
0.075	1185	11.9	93.40	6.60	2 - 8	

Total Weight of Sample: 10000 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	685	6.9	6.85	93.15	90 - 100	
19	1325	13.3	20.10	79.90	71 - 95	
13.2	1145	11.5	31.55	68.45	56 - 80	
4.75	2504	25.0	56.59	43.41	38 - 54	
2.360	1150	11.5	68.09	31.91	28 - 42	
0.300	1256	12.6	80.65	19.35	7 - 21	
0.075	1174	11.7	92.39	7.61	2 - 8	

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Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

JobNo: SCE/BBMP/RL/17/2020-2021

Date: 01.03.2021

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client :
Agency: : **Executive Engineer,** RR Naga Division,BBMP, Bangalore.
: **Sri. R Lokesh,** Contractor, Bangalore.

Name of work: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Source / Location Hot Mix Plant, Bangalore

BIS Code: IS 2386 Part (4):1963
Type of Mix: Dense Graded Bituminous Macadam
Date of test: 01.03.2021

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	400	400	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	85	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	315	319	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	21.25	20.25	**20.75**

Comments:

→ *Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)*

Note:

1. *The report shall not be reproduced, except in full, without the written approval of the labor*
2. *The results indicated above are based on the tests carried out on the samples received in the*
3. *Any Query regarding the report must be reported within 30 days from the date of testing.*

Asst. Executive Engineer
Yeshwanthpura Sub-Division
Bruhat Bangalore Mahanagara P...

For SAPIENCE CONSULTANTS

Authorised Signatory

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sapience
Consultants and Engineers
(Building, Geo-Tech & Road Materials Testing Laboratory)

#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

JobNo: SCE/BBMP/RL/17/2020-2021

Date: 01.03.2021

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client :
Agency: : Executive Engineer, RR Naga Division,BBMP, Bangalore.
: Sri. R Lokesh, Contractor, Bangalore.

Name of work: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

Source / Location Hot Mix Plant, Bangalore

BIS Code: IS 2386 Part (4):1963
Type of Mix: Dense Graded Bituminous Macadam
Date of test: 01.03.2021

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	400	400	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	80	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	320	314	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	20.00	21.50	**20.75**

Comments:

→ *Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)*

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Asst. Executive Engineer
Yeshwanthpura Sub-Division
Bruhat Bangalore Mahanag-

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sapience
Consultants and Engineers
(Building, Geo-Tech & Road Materials Testing Laboratory)

#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

JobNo: SCE/BBMP/RL/17/2020-2021

Date 01.03.2021

TEST RESULTS OF AGGREGATE SHAPE TEST (Flakiness & Elongation)

Client : : Executive Engineer, RR Naga Division,BBMP, Bangalore.
Agency: : Sri. R Lokesh, Contractor, Bangalore.
Name of work: Compreshensive development of roads and drains in Muthyalanagara, LC-4A, Mohankumarnagara, Sundar nagara and surrounding areas in ward no-17 under PACKAGE-2019-20 RRN-DIV-(09)

BIS Code: IS 2386 Part (1):1963
Date of Test: 01.03.2021
Type of Mix: Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	13.50	12.80	26.30	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	10.50	10.60	21.10	

Note:

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2. *The results indicated above are based on the tests carried out on the samples received in the laboratory.*
3. *Any Query regarding the report must be reported within 30 days from the date of testing.*

Asst. Executive Engineer
Yeshwanthpura Sub-Division
Bruhat Bangalore Mahanagara Palike

For SAPIENCE CONSULTANTS

Authorised Signatory

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